

## OFFICIAL USE ONLY

## 1.0 Summary of Funds for Gunshot Detection

### 1.1 External Funds

The initial concept for the fired gunshot detection system was first developed by the Pacific Northwest National Laboratory (PNNL) for Picatinny Arsenal (2008–2010) that had an objective for real-time counting of fired ammo. This technology concept along with electronic concepts developed for Redstone Arsenal and a National Nuclear Security Administration program lead to the request for internal funds to validate a proof-of-concept for “Active Shooter” detection and reporting.

### 1.2 PNNL Funds

There have been three separate PNNL funding mechanisms directed to developing and substantiating the PNNL gunshot detection system (aka *FireFly*). These funding types starting in September 2014 and in chronological order have been (1) National Security Directorate (NSD)-Tactical Opportunity Pool (TOP) of \$25K, (2) TIP-Fast Deployment Funds (FDF) of \$20K, and (3) Tech Maturation of \$68K. The end result has been the development of a miniature, low-cost acoustic gunshot detection and classification system (aka *FireFly*). *FireFly* is developed to deployment at schools and public facilities to enable real-time reporting of the accurate location of an “Active Shooter” and to trigger defensive or precautionary measures to minimize fatalities. The application concept is shown in Figure 1.1 with *FireFly* units installed in individual rooms for gunshot detection and reporting threats to a commercial partner for 911 emergency notifications.

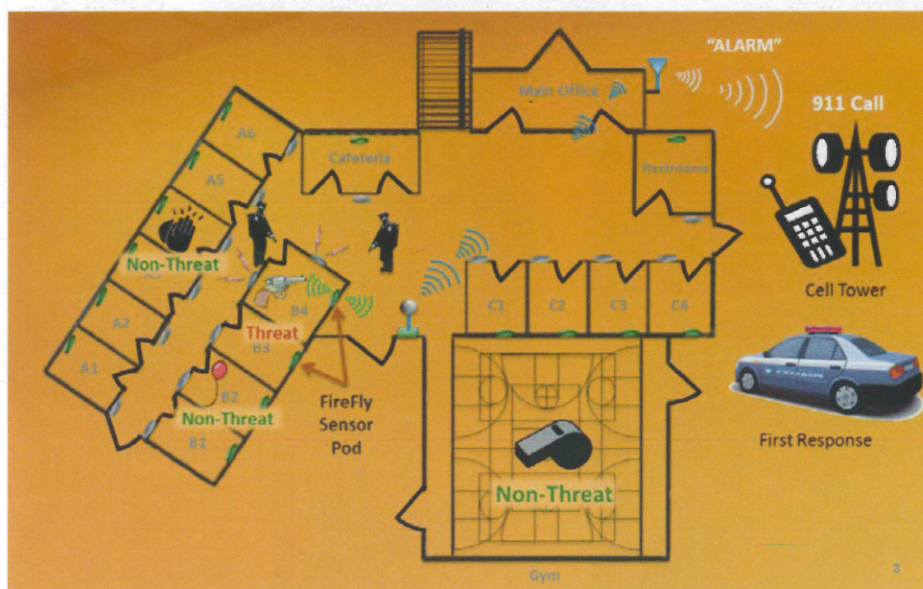


Figure 1.1. Commercialized Active Shooter Detection System Employing *FireFly* System

#### 1.2.1 PNNL NSD-TOP Funding (August 21–September 30, 2014)

PNNL NSD-TOP funding of \$25K was acquired in August 2014 for the fabrication of three new and custom gunshot detections systems that were used to acquire raw live firing data at the Hanford Patrol Shoot House (Figure 1.2).